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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/805,833      | 03/14/2001  | Yoji Okazaki         | 699866/0041         | 4447             |

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EXAMINER

NGUYEN, MICHELLE P

ART UNIT PAPER NUMBER

2851

DATE MAILED: 03/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n No.

09/805,833

Applicant(s)

OKAZAKI, YOJI

Examin r

Michelle Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the c rrespondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,317,348 to Knize in view of U.S. Patent No. 5,796,771 to DenBaars et al.

With regard to claims 1 and 8, Knize discloses a color laser display comprising:

a red laser light source (red solid-state laser means 30) for emitting red laser light (see Col. 3, lines 59-61, Fig. 1);

a green laser light source (green solid-state laser means 40) for emitting green laser light (see Col. 3, lines 59-61, Fig. 1);

a blue laser light source (blue solid-state laser means 50) for emitting blue laser light (see Col. 3, lines 59-61, Fig. 1);

modulation means (red, green, blue light modulator means 20, 24, 28) for modulating the red laser light, the green laser light and the blue laser light based on a red image signal, a green image signal, and a blue image signal (see Col. 3, lines 35-8, Fig. 1);

a screen for displaying red, green and blue when irradiated with the red laser light, the green laser light and the blue laser light (see Fig. 1); and

projection means (scanner 5) for projecting the red laser light, the green laser light and the blue laser light onto the screen so that an image carrying the red, green and blue image signals is displayed on the screen (see Col. 3, lines 42-8, Fig. 1).

Knize does not teach an excitation solid laser unit, having a solid-state laser crystal doped with praseodymium and a gallium nitride semiconductor laser element emitting excitation light at a wavelength of 440 nm for exciting the solid-state laser crystal, to be employed as at least one of the red laser light source, the green laser light source or the blue laser light source. Instead, Knize teaches excitation solid laser units, each having a fiber laser (fiber lasers 49, 58) comprising glass fiber doped with praseodymium and a diode laser emitting excitation light for exciting the respective fiber lasers 49, 58, to be employed as the green and blue laser light sources, respectively (see Col. 4, lines 49-58, Col. 5, lines 24-35). However, DenBaars et al. disclose an excitation solid laser unit, having a solid-state laser crystal or glass (see Col. 3, lines 3-6, Col. 3, line 63 to Col. 4, line 3) doped with praseodymium (see Col. 3, lines 3-6, Col. 4, lines 6-9) and a gallium nitride semiconductor laser element (see Col. 3, lines 13-37, Col. 5, lines 14-44) emitting excitation light at a wavelength of 440 nm (see Col. 5, lines 32-8) for exciting the solid-state laser crystal (see Col. 5, lines 53-7), to be employed as at least one of the red laser light source, the green laser light source or the blue laser light source (see Col. 2, lines 24-8). DenBaars et al. teach the use of gallium nitride as a pump source to provide the advantage of allowing for the entire visible region of the wavelength spectrum to be pumped (see Col. 2, lines 24-8, Col. 3, lines 13-37). Therefore, it would have been obvious to one having ordinary skill in the art at the time

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the invention was made to substitute for the laser means of Knize the solid state laser of DenBaars et al. for having the advantage of producing red, green and/or blue light, and thereby improving display performance.

3. Claims 2-7 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Knize in view of DenBaars et al. as applied to claims 1 and 8 above, respectively, and further in view of U.S. Patent No. 5,727,007 to Smart et al.

With regard to claims 2 and 9, DenBaars et al. teach the excitation solid laser unit as discussed above with respect to claims 1 and 8, respectively, to produce red, green and blue laser light, but do not specify the transition steps made for producing the red laser light (see Col. 2, lines 24-8). However, in an excitation solid laser unit, the emission of laser light of wavelength 600 to 660 nm by a transition of  $^3P_0 \rightarrow ^3F_2$  or  $^3P_0 \rightarrow ^3H_6$  is inherent to the production of red laser light, as shown by Smart et al. (see Col. 1, lines 43-7, Fig. 1). Therefore, it is understood that the excitation solid laser unit of DenBaars et al. emits laser light of wavelength 600 to 660 nm by a transition of  $^3P_0 \rightarrow ^3F_2$  or  $^3P_0 \rightarrow ^3H_6$  and is employed as the red laser light source.

With regard to claims 3 and 10, DenBaars et al. teach the excitation solid laser unit as discussed above with respect to claims 1 and 8, respectively, to produce red, green and blue laser light, but do not specify the transition steps made for producing the green laser light (see Col. 2, lines 24-8). However, in an excitation solid laser unit, the emission of laser light of wavelength 515 to 555 nm by a transition of  $^3P_1 \rightarrow ^3H_5$  is inherent to the production of green laser light, as shown by Smart et al. (see Col. 1, lines 43-7, Fig. 1). Therefore, it is understood that the excitation solid laser unit of

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DenBaars et al. emits laser light of wavelength 515 to 555 nm by a transition of  $^3P_1 \rightarrow ^3H_5$  and is employed as the green laser light source.

With regard to claims 4 and 11, DenBaars et al. teach the excitation solid laser unit as discussed above with respect to claims 2 and 9, respectively, to produce red, green and blue laser light, but do not specify the transition steps made for producing the green laser light (see Col. 2, lines 24-8). However, in an excitation solid laser unit, the emission of laser light of wavelength 515 to 555 nm by a transition of  $^3P_1 \rightarrow ^3H_5$  is inherent to the production of green laser light, as shown by Smart et al. (see Col. 1, lines 43-7, Fig. 1). Therefore, it is understood that the excitation solid laser unit of DenBaars et al. emits laser light of wavelength 515 to 555 nm by a transition of  $^3P_1 \rightarrow ^3H_5$  and is employed as the green laser light source.

With regard to claims 5 and 12, DenBaars et al. teach the excitation solid laser unit as discussed above with respect to claims 1 and 8, respectively, to produce red, green and blue laser light, but do not specify the transition steps made for producing the blue laser light (see Col. 2, lines 24-8). However, in an excitation solid laser unit, the emission of laser light of wavelength 465 to 495 nm by a transition of  $^3P_0 \rightarrow ^3H_4$  is inherent to the production of blue laser light, as shown by Smart et al. (see Col. 1, lines 43-7, Fig. 1). Therefore, it is understood that the excitation solid laser unit of DenBaars et al. emits laser light of wavelength 465 to 495 nm by a transition of  $^3P_0 \rightarrow ^3H_4$  and is employed as the blue laser light source.

With regard to claims 6 and 13, DenBaars et al. teach the excitation solid laser unit as discussed above with respect to claims 2 and 9, respectively, to produce red,

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green and blue laser light, but do not specify the transition steps made for producing the blue laser light (see Col. 2, lines 24-8). However, in an excitation solid laser unit, the emission of laser light of wavelength 465 to 495 nm by a transition of  $^3P_0 \rightarrow ^3H_4$  is inherent to the production of blue laser light, as shown by Smart et al. (see Col. 1, lines 43-7, Fig. 1). Therefore, it is understood that the excitation solid laser unit of DenBaars et al. emits laser light of wavelength 465 to 495 nm by a transition of  $^3P_0 \rightarrow ^3H_4$  and is employed as the blue laser light source.

With regard to claims 7 and 14, DenBaars et al. teach the excitation solid laser unit as discussed above with respect to claims 3 and 10, respectively, to produce red, green and blue laser light, but do not specify the transition steps made for producing the blue laser light (see Col. 2, lines 24-8). However, in an excitation solid laser unit, the emission of laser light of wavelength 465 to 495 nm by a transition of  $^3P_0 \rightarrow ^3H_4$  is inherent to the production of blue laser light, as shown by Smart et al. (see Col. 1, lines 43-7, Fig. 1). Therefore, it is understood that the excitation solid laser unit of DenBaars et al. emits laser light of wavelength 465 to 495 nm by a transition of  $^3P_0 \rightarrow ^3H_4$  and is employed as the blue laser light source.

### ***Conclusion***

4. The following art made of record and not relied upon is considered pertinent to applicant's disclosure:

U.S. Patent No. 6,490,309 to Okazaki et al.

U.S. Patent No. 6,125,132 to Okazaki

U.S. Patent No. 5,309,452 to Ohishi et al.


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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Nguyen whose telephone number is 703-305-2771. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4900.

mpn  
March 4, 2003

  
RUSSELL ADAMS  
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